

5(2)

AUTHORS:

Chernikhov, Yu. A., Dobkina, B. M.

SOV/32-25-2-1/78

TITLE:

Chemical Analysis Methods (Khimicheskiye metody analiza). The Determination of Aluminum in Rare Earths (Opredeleniye alyuminiya v redkikh zemlyakh)

PERIODICAL:

Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 131-132 (USSR)

ABSTRACT:

References on the precipitation of the oxyquinolates of rare earths are contradictory (Refs 1-6). Since beryllium acts like rare earths (I) with regard to oxines (Refs 4,5) the same principle is applied as in the determination of aluminum in beryllium (Ref 7). The method is based on the extraction of the aluminum oxyquinolate by chloroform from an acetate solution (pH = 5) and a colorimetric determination of the aluminum in the extraction. Hydroxylamine is used as a reducing agent in order to preserve cerium in its trivalent form. The determination of aluminum in neodymium-magnesium melts as well as in chlorides of (I) obtained in the processing of loparite is of practical interest (Table 2). The disturbing elements, iron, copper, and nickel, are extracted prior to the analysis in the form of diethyl dithiocarbaminates. Thorium can be removed by potassium biphthalate

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Chemical Analysis Methods. The Determination of
Aluminum in Rare Earths

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(Table 3). The aluminum content is determined either visually
(colorimetric titration) or spectrophotometrically
(at 300-400 mμ) in the usual way. The sensibility of the method
is given as $1 \cdot 10^{-2}$ %. There are 3 tables and 7 references,
1 of which is Soviet.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy institut redkikh i
malykh metallov (State Scientific Research Institute for Rare and
Minor Metals)

Card 2/2

5(2)

AUTHORS: Dobkina, B. M., Petrova, Ye. I.

SOV/32-25-9-11/53

TITLE: Determination of Tantalum Following the Reaction With Pyrogallol in the Presence of Tartaric Acid

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1064-1066 (USSR)

ABSTRACT: The method mentioned in the title has been already applied as a variant of (Ref 1). In the present case, work is done under conditions which diminish the influence of titanium on the determination. The concentration of tartaric acid was chosen according to the thiocyanate method corresponding to the niobium determination, i.e. 8 mg/ml. The absorption curves of the complex compounds of Ta, Ti, and Nb (Fig 1), and the dependence of the optical density on the concentration of these elements (Fig 2) show that 5 - 35 μ /ml Ta_2O_5 may be determined with a maximum error of $\pm 3\%$. As the absorption varies directly as the concentration and the additivity of the optical properties of the pyrogallol complex compounds of Ta, Ti, and Nb, it is possible to determine Ta in the presence of larger quantities of Ti and Nb, allowing for appropriate corrections (Table 1).

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Determination of Tantalum Following the Reaction With SOV/32-25-9-11/53
Pyrogallol in the Presence of Tartaric Acid

According to the present method, for which working procedure references and a course of analysis are given, a technical niobium hydroxide of the following composition was analyzed: 1 - 5% Ta_2O_5 , 30 - 70% Nb_2O_5 , 2 - 30% TiO_2 , 0.5 - 10% Fe_2O_3 , 0.5-10% SiO_2 , and 2% Al_2O_3 approximately. The determination resulted without the prior separation of Ti, or Nb (Table 2, results of analyses). There are 2 figures, 2 tables, and 3 references, 1 of which is Soviet.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy institut redkikh i malykh metallov (State Scientific Research Institute of Rare and Minor Metals)

Card 2/2

MALYUTINA, T.M.; DOBKINA, B.M.; CHERNIKHOV, Yu.A.

Determination of rhenium by the differential spectrophotometric
method. Zav.lab. 26 no.3:259-263 '60. (MIRA 13:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proektnyy institut
redkometallicheskooy promyshlennosti.
(Rhenium--Analysis)

CHERNIKHOV, Yu.A., DOBKINA, B.M., PETROVA, Ye.I.

Determination of zirconium from the reaction with pyrocatechol violet in titanium and its alloys. Zav.lab. 26 no.5:529-531 '60.

(MIRA 13:7)

(Zirconium--Analysis) (Titanium--Analysis)

NOTKINA, M.A.; DOBKINA, B.M.; Prinimali uchastiye: NAZAROVA, M.G.; AKSENOVA,
Z.V.; RASTOPCHINA, A.P.

Spectrochemical method for determining the impurities present in
strontium and barium. Zav.lab 26 no.10:1126-1128 '60.

(MIRA 13:10)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
redkometallichesko^{84.} promyshlennosti.¹²⁴

(Strontium--Analysis)

(Barium--Analysis)

S/137/62/000/003/178/191
A160/A101

AUTHORS: Chernikov, Yu. A.; Dobkina, B. M.; Tramm, R. S.; Pevzner, K. S.

TITLE: Determining tantalum and niobium in mineral raw materials by colorimetric analysis

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 2 - 3, abstract 3 K8 ("Khim., fiz., khim. i spektr. metody issled. rud redk. i rasseyan. elementov", Moscow, Gosgeoltekhizdat, 1961, 108 - 115)

TEXT: Conditions have been developed required for determining Ta in columbite and tantalite concentrates containing Nb $\leq$ 48 % and Ta $\leq$ 50 %. For eliminating the effect of Ti, an appropriate amount of it is introduced into the index solutions. When Ta is analyzed by the photometric means within the visible region of spectrum, Ti is separated-off in advance, by using tannin. The photometric analysis of Ta is carried out at 325 m μ right after the fusion of the assay with K pyrosulfate and leaching of the melt with an (NH₄)₂C₂O₄ solution, without separating it in advance, from other elements. The presence of < 30% Ti does not hinder the determination of Ta. The photometric analysis of Ta is performed on Specker's colorimeter within a concentration range of 0.4 - 0.7 mg/

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Determining tantalum and niobium ...

S/137/62/000/003/178/191
A160/A101

/ml Ta, the error being ~2% (rel.). Nb in the form of its rodanide complex is analyzed by photometric means in acetone, at 390 m μ . A tenfold amount of Ti, in this case, produces an error not over + 3.5 % (rel.). Best reproducible results can be obtained when Nb concentration amounts to 0.015 - 0.03 mg/ml, and also when reagents have the following concentrations: tartaric acid 0.04 M, sulfates 0.002 M, HCl 2.7 M, rodanide 0.3 M, (or 0.6 M, if Ti is present in a moderate amount). Reagents are added to the analyzed solution in the following sequence: tartaric acid, - SnCl₂ solution, - rodanide solution, -HCl, - acetone. There are 21 references.

B. Melent'yev

[Abstracter's note: Complete translation]

Card 2/2

S/032/61/027/006/002/018
B124/B203

AUTHORS: Malyutina, T. M., and Dobkina, B. M.

TITLE: Titanium determination in ilmenite concentrates by the differential spectrophotometric method

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 6, 1961, 650 - 652

TEXT: The differential method (Ref. 1: C. F. Hiskey. Anal. Chem., 21, 1440 (1949); Ref. 2: C. F. Hiskey, J. G. Joung. Anal. Chem., 23, 1196 (1951)) is based on the use of a solution containing the required element in elevated, known concentration and all reagents added for the analytical reaction as a comparison solution; the ratio between the concentration of such a comparison solution and the solution investigated should be near one. The differential spectrophotometric method described in publications (see below) for determining Ti by its reaction with hydrogen peroxide in sulfuric acid was used by the authors (Ref. 7: B. M. Dobkina and T. M. Malyutina. Informatsiya Giredmeta. 10. 49 (1959)) in the analysis of titanium-containing slags and titanium rhenium alloys. Ilmenite concentrates contain, in contrast to titanium-containing slags, about

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Titanium determination...

S/G32/61/027/006/002/C18
B'24/B203

35 % Fe; therefore phosphoric acid is added in high excess to block the iron. The color intensity of the titanium complex is reduced by the presence of phosphoric acid. The absorption maximum of the titanium complex shifts, in the presence of H_3PO_4 , toward shorter wavelength of the spectrum, which suggests the formation of a complex of varying composition. With the chosen wavelength of 390 m μ , the optical density of the titanium peroxy compound only differs by about 0.5 % in the presence or absence of H_3PO_4 . Table 1 gives data of the dependence of optical density on the titanium concentration in the presence of H_3PO_4 . A solution with 12 mg of Ti in 100 ml was used as comparison solution. In the range of from 12 to 18 mg of Ti/100 ml, the optical density is proportional to the concentration; the error of determination is about 0.5 %. The effect of iron was tested on artificial mixtures. The determination results for titanium without addition of H_3PO_4 were elevated, which was corrected by the addition of H_3PO_4 (Table 2). The ilmenite concentrates were decomposed by melting with potassium pyro-sulfate, the melt was dissolved

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Titanium determination...

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B124/B203

in sulfuric acid in the presence of H_2O_2 . A maximum of 0.1 % of TiO_2 was found in the insoluble rest. The results obtained by the method suggested and the volumetric method showed very good agreement. The optical density of the solution investigated is measured by comparison with a comparison solution containing 12 mg of Ti/100 ml, and the titanium content in the aliquot portion of the solution is calculated from the equation $C_x = D_x \cdot F + C_o$, where C_x is the Ti concentration in the solution investigated, D_x its optical density, and $F = (C_1 - C_o)/D_{mean}$ (C_1 is the Ti content in the solution investigated, C_o equal to 12 mg/100 ml, and D the instrument reading) is the factor. The authors measured at 390 m μ with a γ FC-2 (UFS-2) filter and constant slit width. Instead of the calculation from the equation, it is also possible to use a calibration curve for the dependence of optical density on concentration. If the product analyzed contains little iron, the addition of H_3PO_4 may be omitted.

There are 1 figure, 3 tables, and 7 references: 2 Soviet-bloc and 7 non-Soviet-bloc. The four most recent references to English-language

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Titanium determination...

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B124/B203

publications read as follows: R. Guadesde Carvalho, Anal. Chem. 30, 6, 1124 (1958); G. W. Milner, P. Phennah, Analyst, 79, 314 (1954); W. T. L. Neal, Analyst, 79, 403 (1954); C. F. Hiskey, J. G. Joung. Anal. Chem., 23, 1196 (1951).

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskey promyshlennosti (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

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S/032/61/027/006/003/018
B124/B203

5.5310

AUTHORS: Malyutina, T. M., Dobkina, B. M., and Chernikhov, Yu. A.

TITLE: Neodymium determination by the differential spectroscopic method

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 6, 1961, 653 - 656

TEXT: The differential spectroscopic determination of neodymium was made with the Soviet spectrophotometer type Φ -4 (SF-4). For the spectrophotometric Nd determination, the absorption band at 575 m μ is generally used where the maximum lies in perchlorate and nitrate solutions according to the authors' data. In the practice, the use of nitric acid is more convenient than that of perchloric acid as has been suggested in publications. For an accurate determination of the maximum, it is necessary to use sufficiently monochromatic light, i.e., a slit width as narrow as possible. To eliminate the effect of scattered light, the CO-14 (OS-14) light filter was used at 575 m μ . A concentration of 150 mg Nd₂O₃ in 25 ml was used for the comparison solution. With the use of an OS-14 light filter and a slit width

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Neodymium determination by...

of 0.1 mm, well reproducible results are obtained, and the proportionality between optical density and concentration holds for the range of from 150 to 250 mg Nd_2O_3 in 25 ml. Rectangular cuvettes with a layer thickness of 50 mm

were used for the measurements. The measured results (Table 1) did not deviate from the mean value by more than $\pm 1\%$. In the neodymium determination, the neighboring colored elements may disturb, which, first of all, applies to praseodymium, whereas the effect of lanthanum and samarium is low (Table 2). The method tested on pure solutions of neodymium and other rare earths was used to determine the neodymium content in neodymium oxide preparations of varying degree of purity; results obtained under the supervision of S. M. Polyakov are given in Table 3. The method was also used for determining neodymium in Mg-Nd alloys with 15-55% Nd and 45-85% Mg; magnesium did not disturb the neodymium determination. The value of the constant factor was calculated from the equation $F = \Delta C/D$, where $\Delta C = C_1 - C_0$ (C_0 is the concentration of the comparison solution, C_1 the concentration of the solution containing 175-250 mg of Nd_2O_3 , and D is the optical density corresponding to the difference of two concentrations).

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Neodymium determination by...

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The optical density of the test solution is measured with respect to the comparison solution containing 150 mg of Nd_2O_3 . The Nd concentration C_x is calculated from the equation $C_x = C_0 + D_x \cdot F$, where C_0 is the Nd concentration in the comparison solution, D_x the optical density, and F the factor. There are 1 figure, 4 tables, and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The three references to English-language publications read as follows: D. C. Stewart, D. Kato, Anal. Chem., 2, 164 (1958); C. V. Banks, J. Z. Spooner, J. W. O'Zaughlin. Anal. Chem., 30, 40 (1), 458 (1958); C. V. Banks, J. Z. Spooner, J. W. O'Zaughlin. Anal. Chem., 12, 18, 94 (1954)).

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskooy promyshlennosti (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

Card 3/7

DOBKINA, S. I.,

"The Surface Tension of Liquid Selenium and its Relation to Temperature."

Zhur. Fiz. Khim., No. 4, 1946.

DOBKINA, E. I.

USSR/Chemistry - Selenium
Selenium

Feb 1947

"Density and Its Thermal Coefficient for Liquid Selenium," K. V. Astakhov,
N. A. Penin, E. I. Dobkina, 3 pp

"Zhur Obshch Khim" Vol XVII, No 2

Experimental determination of the density of liquid selenium in the temperature
range of 218° - 405°.

PA 15T57

MARKOVA, N.G.; DOBKINA, E.I.

Using radioactive carbon for determining geological age. Priroda
45 no.12:84-86 D '56. (MLRA 10:2)

1. Institut geokhimii i analiticheskoy khimii imeni V.I.Vernad-
skogo Akademii nauk SSSR (Moskva).
(Radiocarbon dating)

SOV/80-32-2-30/56

AUTHORS: Trofimov, A.V., Markova, N.G., Dobkina, E.I.

TITLE: Synthesis of Acetylene From Calcium Carbonate (Sintez atsetilena iz karbonata kal'tsiya)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2, pp 399-404 (USSR)

ABSTRACT: Gaseous compounds of carbon (CO_2 , C_2H_2 , CH_4 , etc) are now used for radiocarbon datings. It is necessary to develop a simple method for preparing acetylene which is free of radioactive pollutions. Acetylene may be prepared from carbonate by decomposition to CO_2 , absorption and precipitation by NH_3 , heating the prepared carbonate with Mg and decomposing the formed carbide with water to C_2H_2 . The yield of acetylene by this method is $86 \pm 6\%$ of the initial carbon. The presence of other gases is detected by a solution of K_2HgJ_4 [Ref 8]. The method has the drawback that the output of acetylene varies considerably (see Table). There is 1 diagram, 1 table, and 8 references, 3 of which are Soviet and 5 English.

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Synthesis of Acetylene From Calcium Carbonate

SOV/80-32-2-30/56

ASSOCIATION: Institut geokhimii i analiticheskoy khimii imeni V.I. Vernad-
skogo AN SSSR (Institute of Geochemistry and Analytic Chemistry
imeni V.I. Vernadskiy of the USSR Academy of Sciences)

SUBMITTED: May 27, 1957

Card 2/2

VINOGRADOV, A.P., akademik; DEVIRTS', A.L.; DOBKINA, E.I.; MARKOVA, N.G.;
MARTISHCHENKO, L.G.; MERGASOV, G.G., red. izd-va; POLYAKOVA, T.V.,
tekhn. red.

[Determination of absolute age by C^{14} with the help of a
proportional counter; description of the method of construc-
tion and results] Opređenje absolutnogo vozrasta po C^{14} pri
pomoshchi proporsional'nogo schetchika; opisaniye metoda kon-
struktsii i rezul'tatov. Moskva, Izd-vo Akad. nauk SSSR, 1961.
57 p. (MIRA 14:8)

(Geological time)

VINOGRADOV, A.P., akad.; DEVIRTS, A.L.; DOBKINA, E.I.; MARKOVA, N.G.;
MARTISHCHENKO, L.G.; MERGASOV, G.G., red. izd-va; POLYAKOVA, T.V.,
tekhn. red.

[Determination of absolute age by C^{14} using a proportional counter;
description of the construction method and results] Opređenje ab-
solutnogo vozrasta po C^{14} pri pomoshchi proporsional'nogo schet-
chika; opisanie metoda konstruksii i rezul'tatov. Moskva, Izd-vo
Akad. nauk SSSR, 1961. 57 p. (MIRA 14:11)
(Radiocarbon dating)

21575

27.0000 4112

S/020/61/137/003/029/030
B103/B208

21.6000

AUTHORS: Vinogradov, A. P., Academician, Devirts, A. L., and
Dobkina, E. I.

TITLE: Increase of the content of active carbon due to nuclear
explosions

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 3, 1961, 688-691

TEXT: The authors studied the C^{14} content in the wood of certain annual rings in the ash tree (*Fraxinus excelsior*) to determine the concentration of C^{14} in the atmosphere of the respective years. Recently it has been found (Ref. 1: O. I. Leypunskiy, Atomnaya energiya, 4, no. 1, 63, 1958, Ref. 2: A. D. Sakharov, ibid, 4, no. 6, 576) that not only long-lived isotopes, such as Sr^{90} , but also C^{14} ($T_{1/2} = 5568 \pm 30$ years) are responsible for the aftereffects of nuclear explosions in time. So far, no data are available on increase and distribution of C^{14} in the "exchange-

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Increase of the content of ...

basin." It is, however, known that from 1953-1955 onward the C^{14} content in the atmosphere increased by 4.3-5% per year, irrespective of the place where nuclear explosions had occurred, and increased by 25-30% until 1959. The ash tree examined was felled near Moscow (Zvenigorod forest) at the end of June, 1960. It had a diameter of 19 cm and an age of 45 years. 15 annual rings (years 1959-1945) were recovered from 2-3 cm thick targets. Separate wood samples from the individual years were burned in an oxygen stream, and ethane was synthesized from the resultant CO_2 (for methods cf. Ref. 10, authors' paper, Geokhimiya no. 8, 3, 1956 and 663, 1959). Calcium carbide containing the carbon from the wood samples was decomposed by distilled Artesian water from a depth of 160 m for the purpose of obtaining acetylene and eliminating contamination by tritium which is also due to nuclear explosions. To remove traces of radon and its decay products, the resultant gas was stored in glass containers for at least 25 days (= 6-7 fold $T_{1/2}$ of Rn which is 3.82 days) prior to counting. C^{14} activity in ethane was determined in a proportional counter filled with gas (gas pressure: 2 atm). 2 g of carbon were contained in the whole counter. Apparatus and methods applied are

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Increase of the content of ...

described in the authors' paper of Ref. 10. The wood of a 30-year-old birch felled in Kamchatka in 1908 was used as a recent standard, to which the activity of the test samples was referred. Fig. 2 shows the increase of the C^{14} content in the ash. Δ^{14} denotes the difference between the activity of the ash samples and that of the standard (zero level). The authors conclude therefrom that the C^{14} content in the annual rings of the ash has rapidly increased between 1956 and 1960, i. e., by 5.5% per year on the average. The difference between the zero levels of ash and birch is due to the "industrial effect", i.e., dilution of atmospheric CO_2 by inactive carbon owing to the intense combustion of coal and petroleum in the course of several decades. The C^{14} increase in the ash thus corresponds to that in the atmosphere during the last few years. The authors point out that this content may further increase by dislocation from the stratosphere into the troposphere. Though a reduced absorption of C^{14} from the atmosphere by plants was expected because of fractionation of the carbon isotopes during photosynthesis, the effect

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Increase of the content of ...

of C^{14} separation becomes less clear owing to the latitude effect and, possibly, the seasonal effect. The C^{14} content in plants thus increases more than in the atmosphere. The authors express their gratitude to V. Ye. Moskaleva, V. M. Kutyurin, D. F. Frantsuzov, and R. V. Bronskaya for selection and supply of wood samples. There are 3 figures and 10 references: 3 Soviet-bloc and 7 non-Soviet-bloc. The reference to the English-language publication reads as follows: Ref. 8, E. H. Willis, Nature, 185, no. 4712, 552 (1960).

SUBMITTED: January 2, 1961

Card 4/5

GROSVAL'D, M.G.; DEVIRTS, A.L.; DOBKINA, E.I.

History of the Holocene in Franz Josef Land. Dokl. AN SSSR 141
no.5:1175-1178 D '61. (MIRA 14:12)

1. Institut geografii AN SSSR i Institut geokhimii i analiticheskoy
khimii im. V.I. Vernadskogo AN SSSR. Predstavleno akademikom
A.P. Vinogradovym.

(Franz Josef Land—Paleogeography)

VINOGRADOV, A.P.; DEVIRTS, A.L.; DOBKINA, E.I.; MARKOVA, N.G.

Determination of the absolute age by the C^{14} . Report No.3.
Geokh'mia no.5:387-402 '62. (MIRA 15:7)

1. V.I. Vernadskiy Institut of Geochemistry and Analytical Chemistry,
Academy of Sciences, U.S.S.R., Moscow.
(Radiocarbon dating)

NEYSHTADT, M.I.; DEVIRTS, A.L.; MARKOVA, N.G.; DOBKINA, E.I.; KHOTINSKIY, N.A.

Dating of holocaine deposits by radiocarbon and pollen analysis.
Dokl. AN SSSR 144 no.5:1129-1131 Je '62. (MIRA 15:6)

1. Institut geografii AN SSSR i Institut geokhimii i analiticheskoy khimii AN SSSR. Predstavleno akademikom I.P.Gerasimovym.
(Holocaine) (Geological time)

CHEBOTAREVA, N.S.; SEREBRIANNYY, I.L.R.; DEVIRTS, A.L.; DOBKINA, E.I.

Absolute age of low river terraces in the central part of the
Russian Plain. Izv. AN SSSR. Ser. geog. no.4:70-74 J1-Ag '62.
(MIRA 16:5)

1. Institut geografii AN SSSR i Institut geokhimii i analiticheskoy
khimii AN SSSR imeni V.I.Vernadskogo.

(East European Plain--Terraces (Geology))
(Geological time)

VELICHKO, A.A.; DEVIRTS, A.L.; DOBKINA, E.I.; MOROZOVA, T.D.; CHICHAGOVA,
O.A.

e First determinations of the absolute age of fossil soils in the
loess of the East European Plain. Dokl. AN SSR 155 no. 3:555-558
Mr '64. (MIRA 17:5)

1. Institut geografii AN SSSR i Institut geokhimii i analiti-
cheskoy khimii im. V.I.Vernadskogo AN SSSR. Predstavleno
akademikom I.P.Gerasimovym.

ACC NR: AP7002296

SOURCE CODE: UR/0020/66/168/004/0900/0903

AUTHOR: Vinogradov, A. P.; Dovits, A. L.; Dobkina, E. I.

ORG: Institute of Geochemistry and Analytical Chemistry im. V. I. Vernadskiy
AN SSSR (Institut geokhimii i analiticheskoy khimii AN SSSR)

TITLE: C^{14} concentration in the atmosphere at the time of the Tunguska Catastrophe and antimatter

SOURCE: AN SSSR. Doklady, v. 168, no. 4, 1966, 900-903

TOPIC TAGS: meteorite, antimatter / Tunguska meteorite

ABSTRACT:

In 1965 Cowan, Atlury and Libby analyzed a number of hypotheses on the cause of the explosion of the Tunguska meteorite; they concluded that the antimatter hypothesis most satisfactorily explained all the accompanying phenomena. If antimatter, in fact, was responsible, there should have been an associated increase of radioactive carbon. Accordingly, this paper describes an investigation for determination of C^{14} in tree rings in the immediate area of the Tunguska explosion (60 km to the south of the epicenter). The 140-year-old tree was cut in 1961. The growing season for the tree was such that any increase of C^{14} would be reflected in the tree ring for 1908. Other rings also were studied -- 1885-1890 (as a control), 1894, 1901, 1907,

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UDC: 550.4

0925

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ACC NR: AP7002296

1908, 1909, 1910, 1913. All other factors which could account for increases or variations of C^{14} content were taken into account. No evidence was found on this basis which would justify the assertion that the so-called Tunguska catastrophe was related to the penetration of antimatter into the earth's atmosphere. Orig. art. has: 3 figures. [JPRS: 37,397]

SUB CODE: 20,03 / SUBM DATE: 15Mar66 / ORIG REF: 008 / OTH REF: 008

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DOES - AD, L. N.
VINOGRADOV, A.P.; DEVIETS, A.L.; DOBKINA, E.N.; MARKOVA, N.G.; MARTISHCHENKO,
L.G.

Using C^{14} to determine absolute age. Report no.1. Geokhimiia no.8:3-9
'56. (MLBA 10:2)

1. Institut geokhimii i analiticheskoy khimii im.V.I. Vernadskogo AN
SSSR, Moskva.
(Radiocarbon dating)

DUB, S.L.; DOBKINA, M.S.; YEVENTOVA, R.I.

Combined application of penicillin, novocain, and ekomoline in pneumonia in infants. Vopr. pediat. 20 no. 5:37-41 Sept-Oct 1952.

(CIML 23:3)

1. Of the Clinic for Young Children (Scientific Supervisor -- Prof. S. P. Borisov), Central Scientific-Research Pediatric Institute (Director -- Prof. S. P. Borisov), Ministry of Public Health RSFSR.

Dobkina, M.S.
DUB, S.L.; DOBKINA, M.S.; EVENTOVA, R.I.

Effect of antibiotics on some clinical and microbiological
indications in pneumonia in small children. Vop.okh.mat. i det.
1 no.6:18-22 N-D '56. (MIRA 10:1)

1. Iz kliniki rannego vozrasta i mikrobiologicheskoy laboratorii
Gosudarstvennogo nauchno-issledovatel'skogo pediatricheskogo instituta
(dir. V.N.Karachevtseva), Moskva.
(ANTIBIOTICS) (PNEUMONIA) (INFANTS--DISEASES)

USSR / General Problems of Pathology. Pathophysiology U
of the Infectious Process.

Abs Jour: Ref Zhur-Biol., No 11, 1958, 51590.

Author : Shirvindt, B. G.; Dobkina, M. S.

Inst : Not given.

Title : On the Problem of Immunological Shifts in Dysentery in Children.

Orig Pub: Pedriatrya, 1956, No 3, 12-30.

Abstract: In 31 children with acute dysentery and in 10 with protracted or chronic dysentery the agglutination reaction was positive in 77% of cases; the phagocytic index was greater in 57.6% cases; the complement was present in 48.5% cases and protective antibodies in 37.3% cases. The immunological reactivity (IR) was higher in acute dysentery than in the protracted or chronic forms.

Card 1/2

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USSR / General Problems of Pathology. Pathophysiology U
of the Infectious Processes.

Abs Jour: Ref Zhur-Biol., No 11, 1958, 51590.

Abstract: There is a parallel relationship between the clinical course of the disease and the nature of IR. The premorbid condition and aggravating factors in the development of the child, as well as the allergic ups and downs lowered the level of IR. Combined immuno-and chemotherapy increased IR.
-- A. F. Blinger.

Card 2/2

SHIRVINDT, B.G.; RYABINSKAYA, T.F.; DOBKINA, M.S.; GOLUBEVA, I.V.;
AL'TGAUZEN, V.P.; NORDSHTEYN, R.A.

Clinical picture and diagnosis of coli enteritis in children. *Pediatrics* 37 no.8:77-82 Ag '59. (MIRA 13:1)

1. Iz Instituta pediatrii Ministerstva zdravookhraneniya RSFSR (dir. - A.P. Chernikova, zamestitel' direktora po nauchnoy chasti - prof. N.R. Shastin), Instituta imeni Mechnikova (dir. - A.P. Muzychenko) i 4-y gorodskoy klinicheskoy bol'nitsy (zaveduyushchiy infektsionnym otdeleniyem T.F. Yermolovich).

(ENTERITIS, etiology)

(ESCHERICHIA COLI INFECTIONS, in infancy & childhood)

SHIRVINDT, B.G., prof.; RYABINSKAYA, T.F.; DOBKINA, M.S.; NORDSHEYN, R.A.

Clinical characteristics of colienteritis and some immunological
indices in its prevalence. Nauch.trudy Ghetv.Mos.gor.klin.boll.
no.1:28-39 '61. (MIRA 16:2)

(INTESTINES--DISEASES) (IMMUNITY) (ESCHERICHIA COLI)

DOBISEK, K. (Praha 8, Bohmice PL.)

100 years since the birth of MUDr. Vincenc Navrat. Cesk.
psychiat. 61 no.2:123-125 Ap '65

DOBISEK, Karel, MUDr

Occupational therapy. Neur. psychiat. cesk. 17 no.6:327-331
Dec 54.

1. Psych. léčebna rady UNV hlav. mesta Prahy.
(OCCUPATIONAL THERAPY, in various diseases
ment. disord.)
(MENTAL DISORDERS, therapy
occup. ther.)

DOBISEK, Karel, MUDr.

Needs of a psychiatrist in construction of psychiatric hospitals. Cesk. zdravot. 4 no.12:698-706 Dec 56.

1. Reditel psychiatrické léčebny v Praze 8.
(HOSPITALS, PSYCHIATRIC,
construction (Cz))

DOBISEK, Karel

Insanity in psychiatric expert testimony. Cesk. psychiat.
53 no.1:45-46 Feb 57.

1. (Autoreferat z prednasky na krajskem skoleni 6. 6 1956.
(INSANITY,
expert med. testimony (Cz))

DOBISEK, Karel

The open door system-development and principles. Cesk. psychiat. 58
no.4:219-224 Ag '62.

1. Psychiatricka lecebna v Praze 8.
(HOSPITALS PSYCHIATRIC)

CZECHOSLOVAKIA

DOBISEK, K., MD.

Psychiatric Hospital (Psychiatricka lecebna), Prague

Prague, Prakticky lekar, No 18, 1963, pp 690-691

"The Medical Realm of Depression Ailments."

DOBISEK, K.

The beginnings of forensic psychiatry in Bohemia. Cesk. psychiat.
60 no.4:269-272 Ag '64.

1. Psychiatricka lecebna, Praha 8.

DOBISEK, Karel

On detention institutions. A contribution to the discussion. Cesk.
psychiat. 55 no.6:403-408 D '59.

1. Psychiatricka lecebna v Praze 8.
(HOSPITALS PSYCHIATRIC jurisprudence)

DOBISEK, K.

On the organization of work in psychiatric hospitals. Cesk.
psychiat.57 no.1:59-60 F '61.

(HOSPITALS PSYCHIATRIC)

BOUCHAL, M.; DOBIAS, J.; DOBISEK, K.; VENCovsky, E.

Participation of Czech psychiatrists in the fight against fascism.
Cesk. psychiat. 57 no.5:313-318 '61.

1. Psychiatricka klinika v Praze, Psychiatricka klinika v Brne,
Psychiatricka klinika v Pizni, Psychiatricka lecebna v Praze -
Bohnicich.

(PSYCHIATRY hist)

BOBISEK, Karel

Some comments on Hadlik's work "Materialistic tradition of the
development of Czech psychiatry. Cesk. psychiat. 58 no.2:127-129
Ap '62.

1. Psychiatricka lecebna, Praha 8.

(PSYCHIATRY)

ALTUNDZHI, Sergey Vladimirovich; BUKHARIN, Viktor Vladimirovich;
DORKINA, Yevgeniya Abramovna; KUZNETSOV, Nikolay Mikhaylo-
vich, inzh.; POPOVA, Kseniya Georgiyevna; TEZIKOV, Aleksandr
Dmitriyevich; FRADIN, Leon Romanovich; BADYL'KES, I.TS.,
doktor tekhn.nauk, retsenzent; SKIRSTYMONSKIY, A.I., inzh.,
retsenzent; PRITYKINA, L.A., red.; SOKOLOVA, I.A., tekhn.red.

[Production and use of liquid carbonic acid] Proizvodstvo i
primeneniye zhidkoi uglekisloty. Moskva, Pishchepromizdat,
1959. 207 p. (Carbonic acid) (MIRA 13:2)

SETKINA, O.N.; DOBKINA, Ye.I.; DERYUZHKINA, V.I.

Study of a wear resistant vanadium catalyst by the infrared spectroscopy method. Izv.vys.ucheb.zav.; khim.i khim.tekh.
7 no.6:1019-1021 '64. (MIRA 18:5)

1. Leningradskiy tekhnologicheskij institut imeni Lensoveta.

CHEPNEYAK, K.A.; MEGVINOV, A.A.; MIKHLENOV, I.P.; DOBKINA, Ye.I.;
DEPYUZHINA, V.I.

Ignition temperature of a wear-resistant vanadium catalyst for
the oxidation of sulfur dioxide. Khim. prom. 41 no.2:35-36 F '65.
(MIRA 18:4)

DOBKINA, Ye.I.; DERYUZHKINA, V.I.; MUKHLENOV, I.P.

Effect of thermal treatment on the porous structure of catalysts.
Kin. 1 kat. 6 no.2:352-355 Mr-Ap '65. (MIRA 18:7)

1. Leningradskiy tekhnologicheskij institut imeni Lensoveda.

MUKHLENOV, I.P.; DOBKINA, Ye.I.; TRABER, D.G.; DERYUZHKINA, V.I.;
FILIPPOVA, Z.G.

Effect of the concentrations of impregnating solutions on the
chemical composition and structure of a mechanically strong
contact vanadium mass. Khim. prom. 41 no.10:751-754 O '65.
(MIRA 18:11)

DOBKINA, YE. N.

137-58-2-3243

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 142 (USSR)

AUTHOR: Dobkina, Ye. N.

TITLE: ~~Welding Brass With Substitutes for Acetylene~~ (Svarka latuni zamenitelyami atsetilena)

PERIODICAL: Tr. Vses. n.-i. in-ta avtogen. obrabotki metallov, 1957, Nr. 4, pp 160-161

ABSTRACT: It is shown that, owing to the high evaporability of the Zn component of brass, it is best that brass be welded with the employment of a heat source having a lower temperature than does a $C_2H_2-O_2$ flame. It is noted that when methane, propane-butane and kerosene are used as substitutes for C_2H_2 , the quality and mechanical properties of the weld are not affected, and the welding cost is cut in half.

V. K.

1. Brass--Welding 2. Gas welding--Materials 3. Gas welding
--Temperature factors 4. Methane--Applications 5. Propane
--Applications 6. Butane--Applications 7. Kerosene--Appli-
cations

Card 1/1

25 (1)

SOV/135-59-4-13/18

AUTHOR: Dobkina, Ye. N., Engineer

TITLE: On the Welding Method Suggested by V. A. Korotkov
(O sposobe svarki, predlozhennom V.A. Korotkovym)

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 4, p 41 (USSR)

ABSTRACT: The method of welding with a filler metal in the form of a tube filled with flux, suggested by welder Korotkov, was tested in the laboratory of VNIIAVTOGEN. The conclusions are as follows: calcium fluoride in the flux has suggested by Korotkov) only complicates the composition; flux of 20% calcined borax and 80% boric acid gives a well deoxidized, clean and well formed seam. The method results in a good bond of the weld metal with the base metal, but there are pores in the weld metal and the tensile strength of the metal drops to 30 kg/mm². The bead is too wide in welding on thin sheet metal and the heat-affected zone increases; besides, the use of filler metal in the form of a tube is not commercially feasible and a brass tape folded into a tube would be more

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SOV/135-59-4-13/18

On the Welding Method Suggested by V. A. Korotkov

economical. The method needs improvement.

ASSOCIATION: VNIIAVTOGEN.

Card 2/2

SHASHKOV, A.N., kand.tekhn.nauk; ASINOVSKAYA, G.A., inzh.; DOBKINA, Ye.N.,
inzh.

Investigating and developing a self-fluxing filler metal for
brass welding. Trudy VNIIAvtogen no.8:37-54 '62. (MIRA 15:6)
(Brass--Welding)

ACC NR: AP6021826

(A)

SOURCE CODE: UR/0413/66/000/012/0135/0135

INVENTORS: Gubin, A. I.; Dobkina, Ye. N.; Smirnova, Yu. A.

ORG: none

TITLE: A solder for soldering of products. Class 49, No. 183037

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 135

TOPIC TAGS: solder, soldering, tin, antimony, copper, silver

ABSTRACT: This Author Certificate presents a solder containing tin, antimony, copper, and silver for soldering products. To obtain soldered joints resisting corrosion at all climatic conditions, the composition is taken in the following percent relation: antimony 1 ± 0.3 ; copper 2 ± 0.3 ; silver 5 ± 0.3 ; tin—the remainder.

SUB CODE: 13/ SUBM DATE: 08Jun64

Card 1/1

UDC: 621.791.35

L 43931-66 EWP(e)/EWT(m)/EWP(v)/T/ETI/EWP(t)/EWP(k) : IJP(c) MJW/JD/HM/WB

ACC NR: AP6027444

SOURCE CODE: UR/0135/66/000/008/0025/0027

AUTHOR: Gubin, A. I. (Candidate of technical sciences); Dobkina, Ye. N. (Engineer)

ORG: none

TITLE: Self-fluxing brazing alloys for stainless steels and heat-resistant alloys

SOURCE: Svarochnoye proizvodstvo, no. 8, 1966, 25-27

TOPIC TAGS: stainless steel, heat resistant alloy, metal brazing, self-fluxing brazing alloy, VPr-4 brazing alloy, VPr-7 brazing alloy, 45-a brazing alloy, 1KhN9T steel, El 437 alloy

ABSTRACT: Brazing of stainless steels and heat-resistant alloys with self-fluxing brazing alloys offers numerous advantages. These alloys contain elements with a high affinity with oxygen, such as boron, silicon and lithium, which reduce oxides of brazed metal components or form low-melting compounds with these oxides. On the basis of experiments, a new self-fluxing brazing alloy VPr-4 has been developed (Author Certificate No. 126730). This alloy can be successfully used for high-frequency brazing of stainless steels without any flux and shielding atmosphere. It melts at 940—980C. In the as-cast condition, it has a tensile strength of 69—76 kg/mm², an elongation of 9—13%, and a density of 8.03 g/cm³. The shear strength of 1Kh18N9T steel joints brazed with VPr-4 alloy is 45-52, 33-40, 29-33, 26-31, 25-28 and 13-18 kg/mm² at -60, 20, 200, 400, 500 and 600C, respectively. Two other self-fluxing

Card 1/2

UDC: 621.791.3:669.15-194

L 43931-66

ACC NR: AP6027444

brazing alloys, VPr-7 and 45-a, have also been developed. Brazing can be done in a protective atmosphere such as argon, helium and nitrogen or in a 10^{-1} mm Hg vacuum. Orig. art. has: 4 figures and 2 tables. [ND]

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001/ ATD PRESS: 5060

Card

✓
DOBKOVICH, V.; MALYAVKO, P.I., redaktor; LEVONEVSKAYA, L.G., tekhnicheskiy
~~redaktor~~

[On the roads and paths of Leningrad Province; tours for young
people] Po dorogam i tropam Leningradskoi oblasti; turistskie
puteshestviia dlia iunosthestva. Leningrad, Lenizdat, 1954. 207 p.
(MIRA 9:3)

(Leningrad Province--Description and travel)

DOBKOVICH, Vladislav Vladislavovich; NOVOSPASSKIY, V.V., redaktor; RAKOV,
S.I., tekhnicheskiy redaktor.

[Through the Karelian isthmus] Po Karelii shodmu putesheiku. Moskva,
Izd-vo VTsSPS Profizdat, 1955 6 p. (MLRA 9:6)
(Karelia--Description and travel)

KALESNIK, S.V.; ARKHANGEL'SKIY, A.M.; DAVYDOV, A.F., kand. nauk;
MALININA, T.I., kand. nauk; PETROVA, N.A., kand. nauk;
RASPOPOV, I.M., kand. geogr. nauk master sporta SSSR po turizmu;
SEME NOVICH, N.I., kand. nauk; DOBKOVICH, V.V., kand. nauk;
MATYUSHIN, V.P., kand. nauk; SLOBOZHAN, I.I., red.;
TIKHONOVA, I.M., tekhn. red.

[For you, tourists! How to conduct observations of nature
during a trip] Vam, Turisty! Kak provodit' nabludeniia nad prirodou
v pakhode. Izd. 2 per. 1 dop. [By] A.F. Davydov i dr, Lenin-
grad, Lenizdat, 1963. 280 p. (MIRA 16:10)

1. Chlen-korrespondent AN SSSR (for Kalesnik).
(Nature study) (Tourism)

DOBKOWA, Maria; POJUDZKI, Edmund

Studies on the effect of aureomycin on experimental diphtheria.
Pediat pol 29 no.1:45-51 Ja '54. (REAL 3:8)

1. Z Zakładu Mikrobiologii Lekarskiej Akademii Medycznej w
Poznaniu, Kierownik: prof. dr med. J. Adamski i z Kliniki
Pediatricznej Akademii Medycznej w Poznaniu, Kierownik: prof.
dr med. K. Jonscher. (Otrzymano: 12.X.1953)

(DIPHTHERIA, experimental,
*eff. of chlortetracycline)
(CHLORTETRACYCLINE, effects,
*on exper. diphtheria)

L 24280-66 EWT(m)/EWP(t) IJP(c) JD/JW/JG
ACC NR: AF6006999 SOURCE CODE: UR/0051/66/020/002/0283/0292

AUTHOR: Gil'fanov, F. Z.; Dobkina, Zh. S.; Stolov, A. L.; Iivanova, L. D. 7/

ORG: none 8

TITLE: Absorption and luminescence spectra of Gd^{3+} in MeF_2

SOURCE: Optika i spektroskopiya, v. 20, no. 2, 1966, 283-292

TOPIC TAGS: absorption spectrum, luminescence spectrum, Stark effect, gadolinium, electron paramagnetic resonance, line width, luminescence center

ABSTRACT: The purpose of the investigation was to identify the terms and the Stark structure of the energy levels belonging to the ions Gd^{3+} in crystals of MeF_2 (Me = Cd, Ca, Ba) on the basis of analysis of the emission and absorption spectra of the Gd^{3+} in these crystals. The optical spectra were measured at temperatures 300 and 77K, using a spectrograph (DFS-8) with linear dispersion 6 Å/mm. The nature of the hosts of the Gd^{3+} ions and their approximate concentration were determined by an electron paramagnetic resonance method. The Stark structures of the $^6P_{7/2}$, $5/2$ and $^6J_{7/2}$, belonging to Gd^{3+} ions in crystal fields of various symmetries, were identified. The results showed that both the luminescence and the absorption spectra of the Gd^{3+} have narrow lines in the ultraviolet region, with widths usually not exceeding 0.7 Å. The lines narrow down by a factor 2--3 times on cooling to liquid-nitrogen temperature. A large number of the lines and the variability of their relative intensity in different samples with different Gd^{3+} concentration point to the presence of several types of optical centers. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 20/ SUBM DATE: 21Nov64/ ORIG REF: 007/ OTH REF: 005
Card 1/1 FV UDC: 535.34 + 535.37 : 546.662

SELECKI, Anatol, doc. dr.; DOBKOWSKI, Zbigniew, mgr inz., st. asystent

Theretical aspects of some thermodynamic isotope effects. Wiad
chem 18 no.9:523-533 S '64

1. Head, Department of Nuclear Chemical Engineering, Technical University, Warsaw, and Head, Laboratory of Dividing and Applying Durable Isotopes, Department XVI, Institute for Nuclear Research, Warsaw (for Salecki). 2. Department of Nuclear Chemical Engineering, Technical University, Warsaw (for Dobkowski).

POLAND

DOBKOWSKI, Zbigniew.

Department of Nuclear Chemistry Engineering, Warsaw
Polytechnic (Katedra Jadrowej Inzynierii Chemicznej
Politechniki, Warszawa).

Warsaw, Chemia analityczna, No 3, May-June 1965,
pp 295-300.

"Stable isotope dilution analysis. Part 1: General
description."

POLAND

DOBKOWSKI, Zbigniew, mgr inż.

Department of Nuclear Chemical Engineering, Warsaw
Polytechnic (Katedra Jadrowej Inzynierii Chemicznej
Politechniki), Warszawa.

Warsaw, Chemia analityczna, No 4, July-August 1965,
pp 519-530.

"Stable isotope dilution analysis. Part 2: Determination of elements and compounds".

DOBLAS, V.

Granulated superphosphate in the system of fertilization of agricultural plants. p. 196
(Sbornik Rada Lesnictvi Vol. 4, no. 4, 1957 Praha)

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

DOBLAYEV, L.P. (Saratov)

How to eliminate certain typical mistakes made by students
of the 6th grade in learning letter symbols. Mat. v shkole
no.2:45-49 Mr-Apr '61. (MIRA 14:4)
(Mathematics—Study and teaching)

DOBLAYEV, L.P.

Role of "preliminary" questions in understanding a textbook.
Vop. psikhol. 9 no.6:117-127 N-D '63. (MIRA 17:4)

1. Saratovskiy gosudarstvennyy universitet imeni Chernyshevskogo.

DOBler, Z. F.

AUTHORS: Klebanskiy, A. L. , Dolgopol'skiy, I. M. , Dobler, Z. F. 20-2-25/60

TITLE: The Rôle of Complex Compounds and Cations of Complex-Forming Components in the Polymerization of Acetylene (Rol' kompleksnykh soyedineniy i kationov kompleksobrazuyushchikh komponentov v reaktsii polimerizatsii atsetilena)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp.323-326 (USSR)

ABSTRACT: It is not possible to consider the mechanism of reaction of acetylene polymerization as definitely determined. Study of the formation of complex compounds of the acetylene hydrocarbons with solutions of CuCl-MCl and of the part of the different components of the solution in the polymerization made it possible to determine the significance of the different complex compounds in catalytic reactions, and to confirm the ionic mechanism of the polymerization reaction. In connection with the mobility of the π -electrons the acetylene compounds can be easily polarized by the central copper atom. During this process, they push the chlorine atoms

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The Role of Complex Compounds and Cations of Complex-Forming Components
in the Polymerization of Acetylene

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from the sphere of coordination of copper and take their place. The formation of complex compounds is confirmed by the substantial increase in the solubility of acetylene and of vinylacetylene, together with higher solubility of the CuCl , and furthermore by the subsequent crystalline precipitation from the solution, this precipitation containing the complexly bound hydrocarbons. The composition of the precipitation showed that it changes in accordance with the nature of the MCl -cation, furthermore also in accordance with the quality of the acetylenehydrocarbons, and in dependence on the ratio $\text{CuCl} : \text{MCl}$ in the solution. The authors of the paper under review obtained the complex compounds in their individual state and confirm their composition as given by Zürich and Ginsburg. Furthermore, the authors isolated complex compounds of the acetylene and of its tetramers, as well as of divinylacetylene. Their empiric formulae are given. If acetylene or vinylacetylene is solved in CuCl-MCl solutions, then the concentration of the hydrogen atoms increases; at polymerization of vinylacetylene, on the other hand, it decreases. But in the latter case further complex compounds are formed which

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- The Rôle of Complex Compounds and Cations of Complex-Forming Components in the Polymerization of Acetylene

contain HCl. A close relationship between the ionizing capacity of the complex compounds and the catalytic activity of their solutions was discovered. The latter increases when the hydrogen ionization in the hydrocarbon is increased. Water is necessary for the ionic hydration of the complex compounds. Without water, no ionization takes place, and consequently also no acetylene polymerization. The above confirms the ionic mechanism of acetylene polymerization. The dependence of the degree of ionization of the acetylene complex compounds is reproduced on Figure 3 contained in the paper under review. Also amino salts can be used as complex components. The amines are arranged in an increasing series with respect to their degree of polarity, characterized by the constant of dissociation. Figure 4 of the present paper illustrates the dependence of the activity of a catalyzer upon the quality of the amines. The transformation of vinyl-acetylene into acetylenetetramer increases with decreasing molecular weight of the cation. The activity of the catalyzer

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The Rôle of Complex Compounds and Cations of Complex-Forming Components
in the Polymerization of Acetylene

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decreases as the polarity increases. The antipolarizing effects of the cations M^+ are the higher the greater the field strength of the cation or its positive polarity for the amino salts. There are 4 figures, and 4 references, 3 of which are Soviet.

ASSOCIATION: All-Union Scientific Research Institute for Synthetic Rubber
imeni S. V. Lebedev (Vsesoyuznyy nauchno-issledovatel'skiy
institut sinteticheskogo kauchuka im. S. V. Lebedeva)

PRESENTED: January 19, 1957, by B. A. Kazanskiy, Member of the Academy

SUBMITTED: January 19, 1957

AVAILABLE: Library of Congress

Card 4/4

DOLGOPOL'SKIY, I.M.; DOBLER, Z.F.; YASHINA, A.P.; TROFIMOVA, P.N.

Polymerization of vinyl acetylene. Zhur. prikl. khim. 31 no.8:1234-1240
Ag '58. (MIRA 11:10)

(Polymerisation) (Butenyne)

5.3700

77526
SOV/80-33-1-35/49

AUTHORS: Dolgopoli'skiy, I. M., Klebanskiy, A. L., Dobler, Z. F.

TITLE: Concerning Properties of Complex Compounds of Acetylene and Vinylacetylenes Formed in CuCl-MCl Solutions

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 1, pp 195-200 (USSR)

ABSTRACT: This is the first paper of a series on the conditions of formation, properties, and compositions of complexes formed by the reaction of acetylene and its dimer with CuCl-MCl solutions. The study was undertaken in order to explain the mechanism of catalytic polymerization of acetylene and vinylacetylenes; it is a continuation of the authors' previous work, a short review of which is given. The following changes of properties of solutions connected with complex formation are reported: color of the solutions and precipitated complexes; increasing solubilities of cuprous chloride and acetylenic hydrocarbons; pH changes of CuCl-MCl solutions with dissolution of

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Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

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acetylene and vinylacetylenes. Complexes $C_6H_6(CuCl)_2$ and $C_8H_8(CuCl)_2$, formed by the reaction of $CuCl-NH_4Cl$, and corresponding hydrocarbons were obtained for the first time. It was found that the color of solutions containing C_2H_2 , $CuCl$, MCl , and vinylacetylenes, changes as a result of complex formation. The colors of the solutions and the complexes depend on the component concentration, their ratio, nature of hydrocarbon, and the cation (M^+) of the complex forming component. The above is illustrated by the following data (see tables and figure). There are 1 figure; 4 tables; and 11 references, 1 German, 1 French, 9 Soviet.

SUBMITTED:

April 29, 1959

Card 2/8

Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

77526
SOV/80-33-1-35/49

Table 1.

(a)	(b)			
	(c)	(d)	(e)	(f)
0.05	(1)	(7)	(8)	(9)
0.10	(2)			
0.25	(3)			
0.50	(4)			
0.75	(5)			
1.00	(6)			

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(See Card 4/8 for Captior. to Table 1)

Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

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Table 1. Color of crystalline precipitates
in a solution of: 2.5 mole CuCl ; 5 mole NH_4Cl ,
depending on concentration of acetylenic hydrocarbon.
(a) Concentration of acetylenic hydrocarbon
(in mole/liter); (b) color of precipitated com-
plexes; (c) acetylene; (d) vinylacetylene; (e)
divinyl acetylene; (f) acetylene tetramer; (1) red
yellow; (2) orange yellow; (3) canary yellow;
(4) pale yellow; (5) colorless; (6) colorless; (7)
canary yellow; (8) yellow; (9) orange yellow.

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(See Card 3/6 for Table 1)

Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

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Table 2. Effect of different cations on color of
CuCl-MCl solutions on saturation with acetylene at
80°. (a) Chloride cation, (b) electric field
intensity of cation; (c) color of CuCl solution; .

(1) NH₄; (2) K; (3) Ca; (4) Mg, (5) Al; (6) orange
(7) yellow orange; (8) yellow; (9) straw yellow;
(10) pale yellow.

(a)	(b)	(c)
(1)	0.48	(6)
(2)	0.60	(7)
(3)	1.8	(8)
(4)	3.3	(9)
(5)	9.2	(10)

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Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

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Table 3.

(a)				(b)				
CuCl	NH ₄ Cl	H ₂ O	C ₂ H ₂	0.05	0.15	0.30	0.40	0.60
2.5	5.0	40	0.25	(1)	(1)	(1)	(1)	(5)
			0.50	(2)	(2)			(1)
			0.75	(3)	(3)			(1)
5.0	5.0	40	0.25	(4)	(4)	(2)	(2)	(2)
			0.75	(5)	(5)			
			0.25	(6)	(6)			
5.4	5.0	30	0.75	(7)	(7)	(5)	(5)	(3)

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Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

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Table 3. Effect of concentration of components
in solution on the color of acetylene complexes.
(a) Concentration of components in solution (in
mole/liter); (b) color of the precipitate of ace-
tylene components at HCl concentration (in mole/liter).

(c)	(d)	(e)	(f)
(1) orange	(1) orange yellow	(1) colorless	(1) colorless
(2) yellow	(2) colorless	(2) yellow	(2) colorless
(3) colorless	(3) colorless	(3) colorless	(3) colorless
(4) orange	(4) orange	(4) orange yellow	(4) yellow
(5) yellow	(5) colorless	(5) colorless	(5) colorless
(6) orange	(6) orange		
(7) yellow	(7) yellow		
		(g)	
		(1) colorless	
		(2) colorless	
		(3) colorless	

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Concerning Properties of Complex Compounds
of Acetylene and Vinylacetylenes Formed
in CuCl-MCl Solutions

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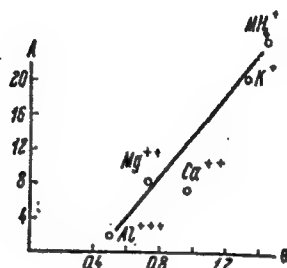


Fig. 1. Increase in CuCl solubility on passing through C_2H_2 , depending on cation MCl radius.
(A) Increase of CuCl solubility (in %); (B) radius of cation M^+ (in A).

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5.3460

77528
SOV/80-33-1-37/49

AUTHORS: Dolgopol'skiy, I. M., Klebanskiy, A. L., Dobler, Z. F.

TITLE: Concerning the Solubility of Alkynes in Solutions of CuCl-MCl. Communication II

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 1, pp 209-212 (USSR)

ABSTRACT: The solubility of acetylene and vinylacetylene in solutions of CuCl-MCl sharply increases in comparison with their solubility in aqueous solutions of MCl. The solubility of acetylene and vinylacetylene increases with increasing field strength, of cations and of the polarity of the cations of ammonia derivatives. Increase of polarity of mono- and trimethylamine occurs with increase of the degree of substitution (weight of cation of ammonia derivative).

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Concerning the Solubility of Alkynes in
Solutions of CuCl-MCl. Communication II

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Table 1. Solubility of acetylene in solutions of MCl
and CuCl-MCl (ratio CuCl : MCl, 1:1).

Complex forming salt (MCl)	Concentration of acetylene in a solution (in mole/l)			
	MCl		CuCl-MCl	
	20°	80°	20°	80°
NH ₄ Cl	0.024	0.010	0.35	0.13
CH ₃ NH ₂ ·HCl	0.042	0.013	0.50	0.15
(CH ₃) ₂ NH·HCl	0.043	0.013	0.60	0.17
KCl	0.040	0.011	0.40	0.15
MgCl ₂	0.014	0.008	0.20	0.05

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Concerning the Solubility of Alkynes in
Solutions of CuCl-MCl. Communication II

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Table 2. Solubility of vinylacetylene in solutions of
CuCl:MCl at 80°. Molar ratio: CuCl:MCl = 1.

Complex Forming salt (MCl)	Weight of cation (in g)	Concentration of vinylacetylene in solution (in mole/l)
NH ₄ Cl	18	0.10
CH ₃ NH ₂ ·HCl	32	0.12
KCl	39	0.13
(CH ₃) ₂ NH·HCl	46	0.14
(CH ₃) ₃ N·HCl	60	0.15
C ₄ H ₉ NH ₂ ·HCl	74	0.18

Card 3/3

5.2620

77630

SOV/80-33-2-5/52

AUTHORS: Dolgopol'skiy, I. M., Klebanskiy, A. L., Dobler, Z. F.

TITLE: Concerning the Stability of Complex Compounds of Vinylacetylenes in CuCl-MCl Solutions

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2, pp 283-289 (USSR)

ABSTRACT: This article is the third in a series and deals with the investigation of formation and decomposition conditions of complex vinylacetylene compounds in CuCl-MCl solutions, with different cations of the complex-forming MCl compound. It was found that the bond strength between vinylacetylene and the central copper atom decreases the cation size (i.e., weight of the cation in the ammonium chloride derivatives increases. The stability of complex compounds is given in Fig. 1 as a function of the cation field strength and of the cation molecular weight.

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Concerning the Stability of Complex Compounds
of Vinylacetylenes in CuCl-MCl Solutions

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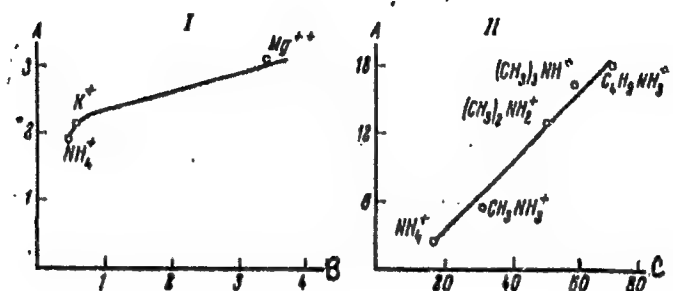


Fig. 1. Stability of vinylacetylene complex compounds in CuCl-MI solutions as a function of the MCl-cation nature. (A) C₄H₄ evolution rate $-v \cdot 10^{-4}$ (in moles/sec); (B) cation field strength; (C) cation weight (in g). I, metals; II, substituted ammonia.

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Concerning the Stability of Complex Compounds
of Vinylacetylenes in CuCl-MCl Solutions

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When the bond strength between vinylacetylene and the copper atom was determined by means of absorption rate of the former, it was found that the formation rate of complex compounds is inversely proportional to the field strength of the MCl cation and to the cation molecular weight in ammonium chloride derivatives. The absorption rates are given in Fig. 2. Regular lowering of the stability is caused by varying polarization of the acetylene or vinylacetylene effected by the central copper atom. The polarizing effect of the copper atom depends on the cation structure in the complex particle; the stronger the cation field, the smaller the thermal stability of the complex compound. When the cation field strength increases, the polarizing effect of the copper atom decreases because the central atom charge is counter-polarized by a similar charge on the cation. This also explains the decrease in complex compound bond strength with increasing degree of substitution of

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Concerning the Stability of Complex Compounds
of Vinylacetylenes in CuCl-MCl Solutions

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ammonium chloride derivatives. It was found that the stability of complex compounds also depends on the nature of the hydrocarbon and decreases according to the following sequence: acetylene > vinylacetylene > divinylacetylene > acetylene tetramer. There are 2 tables; 3 figures; and 1 Soviet reference.

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Concerning the Stability of Complex Compounds
of Vinylacetylenes in CuCl-MCl Solutions

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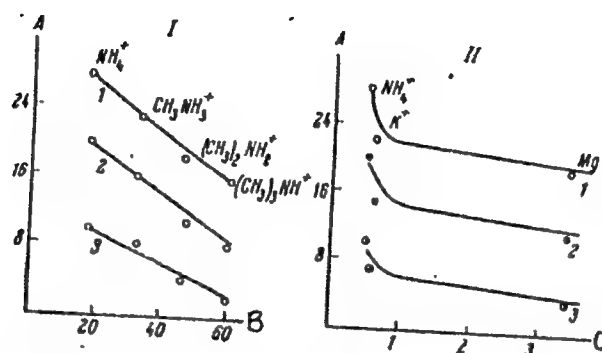


Fig. 2. Rate of formation of vinylacetylene complex compounds in CuCl-MCl solutions as a function of the cation nature. (A) C_4H_4 absorption rate $\cdot 10^{-4}$ (in moles/sec); (B) cation weight (in g); (C) cation field strength. Given: MC_4H_4 (in moles/l). (1) 0.37; (2) 0.26; (3) 0.13. I, substituted ammonia; II, metals.

Card 5/5

5.3300

78235
SOV/80-33-3-36/47

AUTHORS: Klebanskiy, A. L., Dolgopol'skiy, I. M., Dobler, Z. F.

TITLE: Concerning the Increase of the Hydrogen Ion Concentration
Accompanying the Formation of Complex Acetylene and
Vinylacetylene Compounds. Communication IV

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 3,
pp 716-723 (USSR)

ABSTRACT: The authors were the first to show conclusively (Trudy
VNIISK, Goskhimizdat (I), 80, 1948) that the dissolution
of acetylene and vinylacetylene in acid aqueous CuCl-MCl
solutions and the formation of complex compounds is
accompanied by an increase of hydrogen ion concentration.
In the present paper, the above phenomenon was studied
in $\text{CuCl-NH}_4\text{Cl}$ solutions, and the ion concentration was
measured chemically and potentiometrically (with G. A.
Seryshev' method, using a glass electrode) after
dissolution of various amounts of the above gases.
The increase of hydrogen ion concentration depended
on the $\text{CuCl:NH}_4\text{Cl}$ ratio and on the concentration of

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Concerning the Increase of the Hydrogen
Ion Concentration Accompanying the
Formation of Complex Acetylene and
Vinylacetylene Compounds. Communication IV

78235

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CuCl in the solution. In concentrated solutions, the increase corresponded to the ionization of 2 g-ions for acetylene, and to about 1 g-ion for vinylacetylene. There are 7 tables; 3 figures; and 11 references, 2 U.S., 2 French, 3 German, 4 Soviet. The U.S. references are: H. Gilman, K. Z. Bebb, J. Am. Chem. Soc., 61, 109 (1939); L. H. Ryerson, B. Gillespie, *ibid.*, 59, 900 (1937).

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April 19, 1959

Card 2/2

S/080/60/033/04/30/045

AUTHORS: Klebanskiy, A.L., Dolgopol'skiy, I.M., Dobler, Z.F.

TITLE: On the Effect of Various Factors on the Degree of Ionization of Acetylene and Vinylacetylene in $\text{CuCl-NH}_4\text{Cl}$ Solutions. Communication 5.

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 931 - 934

TEXT: It has been shown that during desorption of acetylene and vinylacetylene from $\text{CuCl-NH}_4\text{Cl}$ solutions a decrease of the acidity of the solutions or correspondingly a decrease of the concentration of hydrogen ions in the solution takes place. With an increase in the temperature the quantities of acetylene and vinylacetylene bound in the form of complex compounds with $\text{CuCl-NH}_4\text{Cl}$ decrease and the concentration of hydrogen ions in the solution decreases correspondingly. The degree of ionization of acetylene in $\text{CuCl-NH}_4\text{Cl}$ solutions decreases with an increase in the hydrochloric acid concentration in them, which is explained by a change in the composition of the complex compounds formed. During the formation of complex compounds of acetylene hydrocarbons which do not contain active hydrogen in the acetylene bond (like divinyl acetylene and acetylene tetramer), an increase in the concentration of hydrogen ions does not take place. There are: 4 tables and 2 graphs.

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S/080/60/033/04/39/045

AUTHORS: Dolgopol'skiy, I.M., Klebanskiy, A.L., Dobler, Z.F.

TITLE: On the Effect of the Nature of M^+ Cations in $CuCl-M^+Cl^-$ Complexes on the Ionization Degree of Acetylene and Vinylacetylene. Communication 6.

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 975 - 978

TEXT: All factors affecting the stability of complex compounds have also a certain effect on ionization. It was established that the degree of ionization of acetylene and vinylacetylene decreases with an increase in the field intensity of the M^+ cation in $CuCl-MCl$ complexes. The ionization degree decreases with an increase in the degree of substitution in the cations of the ammonium derivatives or the size of the alkyl radical. Analogous laws were established concerning the effect of cations on the stability of complex compounds of acetylene and vinylacetylene with $CuCl-MCl$ solutions. An explanation is given of the effect of cations on the degree of ionization and the stability of complex compounds of acetylene and vinylacetylene. The explanation is based on the action of their field, directed contrary to the action of the field of the central copper atom (counterpolarizing effect), causing the weakening of the polarizing effect of the central copper atom and the decrease in the stability of complex compounds. There are 3 graphs, 1 table and 2 Soviet references.

SUBMITTED: June 19, 1959

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